

SEQUENCE LISTING

<110> Field, Loren J.
Tsai, Shih-Chong

<120> P193 PROTEINS AND NUCLEIC ACIDS, AND USES THEREOF

<130> IU99-PCT

<140> Not Yet Known

<141> 2000-08-23

<150> 60/150,266

<151> 1999-08-23

<160> 4

<170> PatentIn Ver. 2.1

<210> 1

<211> 5217

<212> DNA

<213> Mus musculus

<220>

<221> CDS

<222> (62)..(5128)

<400> 1

```

ttcctagctc tgcaaaggac aggccctcgcg caggatcccg gcggacttct gaggtgccac 60
g atg gta ggg gag cta cga tac agg gaa ttc agg gtg ccc ctg ggg cct 109
Met Val Gly Glu Ala Leu Arg Tyr Arg Glu Phe Arg Val Pro Leu Gly Pro
1 5 10 15

ggc ttg cac gcg tat ccg gat gaa ttg atc cgc caa cgg gtt ggc cat 157
Gly Leu His Ala Tyr Pro Asp Glu Leu Ile Arg Gln Arg Val Gly His
20 25 30

aat ggg cac ccc gag tat cag atc cgc tgg ctc atc ctc agg cgc ggg 205
Asn Gly His Pro Glu Tyr Gln Ile Arg Trp Leu Ile Leu Arg Arg Gly
35 40 45

gat gat ggg gac cgg gac tct aca gtg gac tgc aag gct gag cat atc 253
Asp Asp Gly Asp Arg Asp Ser Thr Val Asp Cys Lys Ala Glu His Ile
50 55 60

ctg tta tgg atg tct gac gat gag atc tat gcc aac tgc cac aag atg 301
Leu Leu Trp Met Ser Asp Asp Glu Ile Tyr Ala Asn Cys His Lys Met
65 70 75 80

ctg ggc gag aat ggc caa gtc atc gca cct tcc cgg gag tcc act gag 349
Leu Gly Glu Asn Gly Gln Val Ile Ala Pro Ser Arg Glu Ser Thr Glu
85 90 95

gca ggg gcc ctc gac aag tct gtg ctg ggg gag atg gaa aca gat gtg 397
Ala Gly Ala Leu Asp Lys Ser Val Leu Gly Glu Met Glu Thr Asp Val
100 105 110

aag tcc ttg att cag agg gcc ctt cgg cag ctg gag gag tgc gtg ggc 445
Lys Ser Leu Ile Gln Arg Ala Leu Arg Gln Leu Glu Glu Cys Val Gly
115 120 125

acc gtg cct cct gcc cct ctc ctt cac acg gtc cat gta ctc agt gcc 493
Thr Val Pro Pro Ala Pro Leu Leu His Thr Val His Val Leu Ser Ala
130 135 140

```

tat gcc agc atc gag ccc ctc act ggc atc ttc aaa gac cgc agg gtt 541
 Tyr Ala Ser Ile Glu Pro Leu Thr Gly Ile Phe Lys Asp Arg Arg Val
 145 150 155 160

gtg aac ttg ctc atg cac atg ttg agc agt cct gat tat cag atc cgc 589
 Val Asn Leu Leu Met His Met Leu Ser Ser Pro Asp Tyr Gln Ile Arg
 165 170 175

tgg agc gca ggc cgg atg atc caa gct ctg tcc tcc cac gat gct ggg 637
 Trp Ser Ala Gly Arg Met Ile Gln Ala Leu Ser Ser His Asp Ala Gly
 180 185 190

acc cgg acc cag atc ctt ctg tca ttg agc caa caa gag gcc att gaa 685
 Thr Arg Thr Gln Ile Leu Leu Ser Gln Gln Glu Ala Ile Glu
 195 200 205

aag cac ctg gat ttt gat agc cgc tgc gct ctg ctt gca ctg ttc gcc 733
 Lys His Leu Asp Phe Asp Ser Arg Cys Ala Leu Leu Ala Leu Phe Ala
 210 215 220

cag gct act ctc acg gaa cac ccg atg tct ttc gag ggc gtt cag ctg 781
 Gln Ala Thr Leu Thr Glu His Pro Met Ser Phe Glu Gly Val Gln Leu
 225 230 235 240

cca cag gtc cca gga cgg ctg ctc ttc tcc ctg gta aaa cgc tac ctg 829
 Pro Gln Val Pro Gly Arg Leu Leu Phe Ser Leu Val Lys Arg Tyr Leu
 245 250 255

cac gtc acc ttc ctc ctg gat cgg ctg aac ggc gat gca ggg gat caa 877
 His Val Thr Phe Leu Leu Asp Arg Leu Asn Gly Asp Ala Gly Asp Gln
 260 265 270

gga gcc cag aac aac ttt agt cct gag gag ttg aat gta ggg agg ggc 925
 Gly Ala Gln Asn Asn Phe Ser Pro Glu Glu Leu Asn Val Gly Arg Gly
 275 280 285

cgg ctg gaa ctg gaa ttc agt atg gcc atg ggc act ctg atc tct gag 973
 Arg Leu Glu Leu Glu Phe Ser Met Ala Met Gly Thr Leu Ile Ser Glu
 290 295 300

ctg gtg cag gcc atg cgc tgg gac ggg gcc tca agc aga cca gag agt
 1021
 Leu Val Gln Ala Met Arg Trp Asp Gly Ala Ser Ser Arg Pro Glu Ser
 305 310 315 320

tct tcc tcc tcc acc ttc cag cct cgg cca gca cag ttc cgc ccc tac
 1069
 Ser Ser Ser Ser Thr Phe Gln Pro Arg Pro Ala Gln Phe Arg Pro Tyr
 325 330 335

acc cag cgt ttc agg agg tcg agg cgg ttt cgc ccc cgt gcc tcg ttt
 1117
 Thr Gln Arg Phe Arg Arg Ser Arg Arg Phe Arg Pro Arg Ala Ser Phe
 340 345 350

gcc agt ttt aat acc tat gcc ttg tat gtg cgg gac acg ctg cgg ccc
 1165
 Ala Ser Phe Asn Thr Tyr Ala Leu Tyr Val Arg Asp Thr Leu Arg Pro
 355 360 365

ggg atg cgg gta cgg atg ctg gag aat tac gag gag atc gct gct ggg
 1213
 Gly Met Arg Val Arg Met Leu Glu Asn Tyr Glu Glu Ile Ala Ala Gly
 370 375 380

gat gag ggc cag ttc cga cag agc aat gat ggc gtt ccc cca gcg cag
1261

Asp Glu Gly Gln Phe Arg Gln Ser Asn Asp Gly Val Pro Pro Ala Gln
385 390 395 400

gtg ttg tgg gat tca aca ggc cat acc tac tgg gtg cac tgg cac atg
1309

Val Leu Trp Asp Ser Thr Gly His Thr Tyr Trp Val His Trp His Met
405 410 415

ctg gag atc ttg ggc ttt gag gaa gac atc gag gat gtg att gat att
1357

Leu Glu Ile Leu Gly Phe Glu Glu Asp Ile Glu Asp Val Ile Asp Ile
420 425 430

gaa gag tta cag gag cta ggg gcc aat gga gca ctg agc atc gtc ccg
1405

Glu Glu Leu Gln Glu Leu Gly Ala Asn Gly Ala Leu Ser Ile Val Pro
435 440 445

ccg tcc cag cgc tgg aag ccc ata act cag ctc ttt gcc gag cct tac
1453

Pro Ser Gln Arg Trp Lys Pro Ile Thr Gln Leu Phe Ala Glu Pro Tyr
450 455 460

gtg gta ccc gag gag gaa gac agg gaa gag agc gag aac ttg acc cag
1501

Val Val Pro Glu Glu Glu Asp Arg Glu Glu Ser Glu Asn Leu Thr Gln
465 470 475 480

gct gag tgg tgg gag ctc ctc ttc ttc atc cgg cag ttg agt gag gca
1549

Ala Glu Trp Trp Glu Leu Leu Phe Phe Ile Arg Gln Leu Ser Glu Ala
485 490 495

gag cgc ctt cac atc gtg gat ctc ctg caa gac cac ctg gaa gag gag
1597

Glu Arg Leu His Ile Val Asp Leu Leu Gln Asp His Leu Glu Glu Glu
500 505 510

cgc gtt ctg gac tac gat atg ctg cct gag ctg acc gtg ccc gtt gac
1645

Arg Val Leu Asp Tyr Asp Met Leu Pro Glu Leu Thr Val Pro Val Asp
515 520 525

ttg gcc cag gat ctg ctg ttg tct ctg cct cag caa ctt gag gac agt
1693

Leu Ala Gln Asp Leu Leu Leu Ser Leu Pro Gln Gln Leu Glu Asp Ser
530 535 540

gct ctg agg gac ctg ttc agc tgc agt gtc tac agg aag tat ggg ccc
1741

Ala Leu Arg Asp Leu Phe Ser Cys Ser Val Tyr Arg Lys Tyr Gly Pro
545 550 555 560

gaa gtc ctg gta ggg cat cta agc tac cca ttt gtg cca ggt gcc cag
1789

Glu Val Leu Val Gly His Leu Ser Tyr Pro Phe Val Pro Gly Ala Gln
565 570 575

cca aat tta ttc gga gcc aat gaa gag tct gaa gcc aaa gat ccc cca
1837

Pro Asn Leu Phe Gly Ala Asn Glu Glu Ser Glu Ala Lys Asp Pro Pro
580 585 590

ctt cag agt gcc agc cct gcc ctg cag cgc ctg gtg gag agc ttg ggc

1885

Leu Gln Ser Ala Ser Pro Ala Leu Gln Arg Leu Val Glu Ser Leu Gly
595 600 605

ccc gaa ggg gag gtc ctt gtg gaa ctg gaa caa gcc ctc ggc tcc gag
1933

Pro Glu Gly Glu Val Leu Val Glu Leu Glu Gln Ala Leu Gly Ser Glu
610 615 620

gct ccc cag gaa act gag gtc aag tcc tgc ttg ttg cag ctc cag gag
1981

Ala Pro Gln Glu Thr Glu Val Lys Ser Cys Leu Leu Gln Leu Gln Glu
625 630 635 640

cag ccc cag ccc ttc ctc gct ctg atg cgg agc ctg gac act tcc gcc
2029

Gln Pro Gln Pro Phe Leu Ala Leu Met Arg Ser Leu Asp Thr Ser Ala
645 650 655

agc aac aag acc ctg cac ctc act gtg ctc aga atc tta atg cag ctg
2077

Ser Asn Lys Thr Leu His Leu Thr Val Leu Arg Ile Leu Met Gln Leu
660 665 670

gtg aac ttc cca gag gcg ctg ttg cta ccc tgg cac gag gcc atg gat
2125

Val Asn Phe Pro Glu Ala Leu Leu Leu Pro Trp His Glu Ala Met Asp
675 680 685

gcc tgc gtg acc tgc ctt cgg tcc ccc aat act gac cga gag gtg ctc
2173

Ala Cys Val Thr Cys Leu Arg Ser Pro Asn Thr Asp Arg Glu Val Leu
690 695 700

cag gaa cta atc ttt ttc ctg cac cgc ctg acc acc aca agc cgg gac
2221

Gln Glu Leu Ile Phe Phe Leu His Arg Leu Thr Thr Thr Ser Arg Asp
705 710 715 720

tat gcg gtg ata cta aac cag cat gga gcc cgg gac gcc atc tcc aaa
2269

Tyr Ala Val Ile Leu Asn Gln His Gly Ala Arg Asp Ala Ile Ser Lys
725 730 735

gtc ctg gaa aag cac cga ggg aaa ctg gag ttg gct cag gag ctg cgg
2317

Val Leu Glu Lys His Arg Gly Lys Leu Glu Leu Ala Gln Glu Leu Arg
740 745 750

gat atg gtg tcc aag tgt gag aag cat gcc cac ctc tac cgg aaa ctc
2365

Asp Met Val Ser Lys Cys Glu Lys His Ala His Leu Tyr Arg Lys Leu
755 760 765

acc acc aac atc ctg ggc ggt tgc atc cag atg gtc ctg ggt cag att
2413

Thr Thr Asn Ile Leu Gly Gly Cys Ile Gln Met Val Leu Gly Gln Ile
770 775 780

gaa gac cac aga cga acc cac cgg ccc atc caa atc cca ttc ttt gat
2461

Glu Asp His Arg Arg Thr His Arg Pro Ile Gln Ile Pro Phe Phe Asp
785 790 795 800

gtg ttt ctc aga tat ctg tgc cag ggc tcc agt gag gaa atg aag aaa
2509

1885
Leu Gln Ser Ala Ser Pro Ala Leu Gln Arg Leu Val Glu Ser Leu Gly
595 600 605
1933
Pro Glu Gly Glu Val Leu Val Glu Leu Glu Gln Ala Leu Gly Ser Glu
610 615 620
1981
Ala Pro Gln Glu Thr Glu Val Lys Ser Cys Leu Leu Gln Leu Gln Glu
625 630 635 640
2029
Gln Pro Gln Pro Phe Leu Ala Leu Met Arg Ser Leu Asp Thr Ser Ala
645 650 655
2077
Ser Asn Lys Thr Leu His Leu Thr Val Leu Arg Ile Leu Met Gln Leu
660 665 670
2125
Val Asn Phe Pro Glu Ala Leu Leu Leu Pro Trp His Glu Ala Met Asp
675 680 685
2173
Ala Cys Val Thr Cys Leu Arg Ser Pro Asn Thr Asp Arg Glu Val Leu
690 695 700
2221
Gln Glu Leu Ile Phe Phe Leu His Arg Leu Thr Thr Thr Ser Arg Asp
705 710 715 720
2269
Tyr Ala Val Ile Leu Asn Gln His Gly Ala Arg Asp Ala Ile Ser Lys
725 730 735
2317
Val Leu Glu Lys His Arg Gly Lys Leu Glu Leu Ala Gln Glu Leu Arg
740 745 750
2365
Asp Met Val Ser Lys Cys Glu Lys His Ala His Leu Tyr Arg Lys Leu
755 760 765
2413
Thr Thr Asn Ile Leu Gly Gly Cys Ile Gln Met Val Leu Gly Gln Ile
770 775 780
2461
Glu Asp His Arg Arg Thr His Arg Pro Ile Gln Ile Pro Phe Phe Asp
785 790 795 800
2509
gtg ttt ctc aga tat ctg tgc cag ggc tcc agt gag gaa atg aag aaa

| | | | | | | | | | | | | | | | | |
|------|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|------|-----|-----|
| Val | Phe | Leu | Arg | Tyr | Leu | Cys | Gln | Gly | Ser | Ser | Glu | Glu | Met | Lys | Lys | |
| | | | | 805 | | | | | 810 | | | | | 815 | | |
| aac | agg | tac | tgg | gag | aag | gtg | gag | gtg | tcc | tcc | aac | cca | cag | cgg | gcc | |
| 2557 | Asn | Arg | Tyr | Trp | Glu | Lys | Val | Glu | Val | Ser | Ser | Asn | Pro | Gln | Arg | Ala |
| | | | | 820 | | | | | 825 | | | | | 830 | | |
| agc | agg | ctg | acg | gac | cgc | aac | ccc | aag | acc | tac | tgg | gag | tcc | agt | ggc | |
| 2605 | Ser | Arg | Leu | Thr | Asp | Arg | Asn | Pro | Lys | Thr | Tyr | Trp | Glu | Ser | Ser | Gly |
| | | | | 835 | | | | | 840 | | | | | 845 | | |
| agg | gcc | ggc | tcc | cac | ttc | atc | acc | tta | cac | atg | cgc | cca | ggg | gtc | atc | |
| 2653 | Arg | Ala | Gly | Ser | His | Phe | Ile | Thr | Leu | His | Met | Arg | Pro | Gly | Val | Ile |
| | | | | 850 | | | | | 855 | | | | | 860 | | |
| atc | agg | cag | ctg | act | cta | ctg | gtg | gct | ggc | gag | gac | tca | agc | tac | atg | |
| 2701 | Ile | Arg | Gln | Leu | Thr | Leu | Leu | Val | Ala | Gly | Glu | Asp | Ser | Ser | Tyr | Met |
| | | | | 865 | | | | | 870 | | | | | 875 | | |
| cca | gcc | tgg | gtg | gtg | gta | tgc | ggg | ggc | aac | agc | atc | aag | tcc | gtt | aat | |
| 2749 | Pro | Ala | Trp | Val | Val | Val | Cys | Gly | Gly | Asn | Ser | Ile | Lys | Ser | Val | Asn |
| | | | | 885 | | | | | 890 | | | | | 895 | | |
| aaa | gaa | ctc | aac | acg | gta | aac | gtg | atg | ccc | tct | gcc | agc | cgg | gtg | acc | |
| 2797 | Lys | Glu | Leu | Asn | Thr | Val | Asn | Val | Met | Pro | Ser | Ala | Ser | Arg | Val | Thr |
| | | | | 900 | | | | | 905 | | | | | 910 | | |
| ctc | ctg | gag | aac | ctg | acc | cgc | ttc | tgg | ccc | atc | atc | caa | atc | aga | ata | |
| 2845 | Leu | Leu | Glu | Asn | Leu | Thr | Arg | Phe | Trp | Pro | Ile | Ile | Gln | Ile | Arg | Ile |
| | | | | 915 | | | | | 920 | | | | | 925 | | |
| aag | cgc | tgc | cag | cag | ggg | ggc | att | aac | acg | cgc | atc | cgg | ggc | cta | gag | |
| 2893 | Lys | Arg | Cys | Gln | Gln | Gly | Gly | Ile | Asn | Thr | Arg | Ile | Arg | Gly | Leu | Glu |
| | | | | 930 | | | | | 935 | | | | | 940 | | |
| gtg | ctg | ggc | ccc | aag | ccc | acc | ttc | tgg | cca | gtg | ttc | cga | gag | caa | ctg | |
| 2941 | Val | Leu | Gly | Pro | Lys | Pro | Thr | Phe | Trp | Pro | Val | Phe | Arg | Glu | Gln | Leu |
| | | | | 945 | | | | | 950 | | | | | 955 | | |
| tgc | cgg | cac | acg | cgc | ctc | ttc | tac | atg | gtt | cgg | gcc | cag | gca | tgg | agt | |
| 2989 | Cys | Arg | His | Thr | Arg | Leu | Phe | Tyr | Met | Val | Arg | Ala | Gln | Ala | Trp | Ser |
| | | | | 965 | | | | | 970 | | | | | 975 | | |
| cag | gac | ata | gca | gag | gac | cgc | cgg | agc | ctt | ctg | cac | ctg | agt | tct | agg | |
| 3037 | Gln | Asp | Ile | Ala | Glu | Asp | Arg | Arg | Ser | Leu | Leu | His | Leu | Ser | Ser | Arg |
| | | | | 980 | | | | | 985 | | | | | 990 | | |
| cta | aat | ggg | gct | ctg | cgc | cat | gaa | cag | aat | ttt | gca | gag | cgc | ttc | ctt | |
| 3085 | Leu | Asn | Gly | Ala | Leu | Arg | His | Glu | Gln | Asn | Phe | Ala | Glu | Arg | Phe | Leu |
| | | | | 995 | | | | | 1000 | | | | | 1005 | | |
| cct | gat | atg | gag | gcc | gcc | caa | gca | ctg | agc | aag | acc | tgc | tgg | gag | gcg | |
| 3133 | Pro | Asp | Met | Glu | Ala | Ala | Gln | Ala | Leu | Ser | Lys | Thr | Cys | Trp | Glu | Ala |

| 1010 | 1015 | 1020 |
|---|------|-----------|
| ctg gtc agc ccc ctg gtg cag aac att aca tct ccc gat gag gac agc 3181 | | |
| Leu Val Ser Pro Leu Val Gln Asn Ile Thr Ser Pro Asp Glu Asp Ser 1025 | 1030 | 1035 1040 |
| acc agc tcc ttg ggc tgg ctg ctg gat cag tac ttg gga tgc agg gag 3229 | | |
| Thr Ser Ser Leu Gly Trp Leu Leu Asp Gln Tyr Leu Gly Cys Arg Glu 1045 | 1050 | 1055 |
| gct gcc tac aat ccc cag agc agg gct gct gct ttc tcc tcc cgg gtt 3277 | | |
| Ala Ala Tyr Asn Pro Gln Ser Arg Ala Ala Ala Phe Ser Ser Arg Val 1060 | 1065 | 1070 |
| cgc cgc ctt acc cac ctc ctg gtc cat gtg gag ccc cgt gag gca gca 3325 | | |
| Arg Arg Leu Thr His Leu Leu Val His Val Glu Pro Arg Glu Ala Ala 1075 | 1080 | 1085 |
| cct ccg gtg gtg gcc atc cct cga tcc aag ggc agg aac aga atc cat 3373 | | |
| Pro Pro Val Val Ala Ile Pro Arg Ser Lys Gly Arg Asn Arg Ile His 1090 | 1095 | 1100 |
| gac tgg agc tac ttg atc acc cgg ggc ctt cca agt agc atc atg aag 3421 | | |
| Asp Trp Ser Tyr Leu Ile Thr Arg Gly Leu Pro Ser Ser Ile Met Lys 1105 | 1110 | 1115 1120 |
| aac ctg acc cgc tgt tgg cgg tct gtg gtg gag gag cag atg aac aag 3469 | | |
| Asn Leu Thr Arg Cys Trp Arg Ser Val Val Glu Glu Gln Met Asn Lys 1125 | 1130 | 1135 |
| ttt ctc agt gcg tcc tgg aaa gac gat gat ttc gta ccc cgc tat tgc 3517 | | |
| Phe Leu Ser Ala Ser Trp Lys Asp Asp Asp Phe Val Pro Arg Tyr Cys 1140 | 1145 | 1150 |
| gag cgc tat tac gtc ctg cag aag tcc agc tca gag ctg ttt ggg cca 3565 | | |
| Glu Arg Tyr Tyr Val Leu Gln Lys Ser Ser Ser Glu Leu Phe Gly Pro 1155 | 1160 | 1165 |
| cga gct gcc ttc ttg ctg gca atg cgg aat ggc tgt gct gat gct gtg 3613 | | |
| Arg Ala Ala Phe Leu Leu Ala Met Arg Asn Gly Cys Ala Asp Ala Val 1170 | 1175 | 1180 |
| cgg agg ctc cct ttc ctc agg gcc gcc cat gtg aag cag cag ttt gct 3661 | | |
| Arg Arg Leu Pro Phe Leu Arg Ala Ala His Val Lys Gln Gln Phe Ala 1185 | 1190 | 1195 1200 |
| cgg cac att gac cag agg atc caa ggc agt agg atg ggt gga gcc cgg 3709 | | |
| Arg His Ile Asp Gln Arg Ile Gln Gly Ser Arg Met Gly Gly Ala Arg 1205 | 1210 | 1215 |
| gga atg gag atg ctg gca cag ttg cag cga tgc ctg gag tct gtc ctg 3757 | | |
| Gly Met Glu Met Leu Ala Gln Leu Gln Arg Cys Leu Glu Ser Val Leu 1220 | 1225 | 1230 |

att ttc tct ccc ctg gag ata gcc acc acc ttt gag cat tac tac cag
3805

Ile Phe Ser Pro Leu Glu Ile Ala Thr Thr Phe Glu His Tyr Tyr Gln
1235 1240 1245

cac tac atg gct gac cgt ctc ctg agc gta ggc tcc agc tgg ctg gag
3853

His Tyr Met Ala Asp Arg Leu Leu Ser Val Gly Ser Ser Trp Leu Glu
1250 1255 1260

ggg gcc gta ctg gag cag atc ggt ccc tgc ttc ccc agc cgt ctt ccc
3901

Gly Ala Val Leu Glu Gln Ile Gly Pro Cys Phe Pro Ser Arg Leu Pro
1265 1270 1275 1280

cag cag atg cta cag agc ctg aac gtc tca gag gag ttg cag cgt cag
3949

Gln Gln Met Leu Gln Ser Leu Asn Val Ser Glu Glu Leu Gln Arg Gln
1285 1290 1295

ttc cac gtt tac cag ctg cag cag ctt gat cag gag ctc ctg aag ctg
3997

Phe His Val Tyr Gln Leu Gln Gln Leu Asp Gln Glu Leu Leu Lys Leu
1300 1305 1310

gaa gac acg gaa aag aag ata cag gtg gcc cat gag gac agt ggc aga
4045

Glu Asp Thr Glu Lys Lys Ile Gln Val Ala His Glu Asp Ser Gly Arg
1315 1320 1325

gag gac aag agc aag aag gaa gaa gcc att gga gaa gcc gcg gct gtg
4093

Glu Asp Lys Ser Lys Lys Glu Glu Ala Ile Gly Glu Ala Ala Ala Val
1330 1335 1340

gct atg gca gag gag gag gat caa ggg aag aag gag gag gga gag gag
4141

Ala Met Ala Glu Glu Glu Asp Gln Gly Lys Lys Glu Glu Gly Glu Glu
1345 1350 1355 1360

gaa ggg gag gga gag gat gag gag gaa gag cgc tat tat aaa gga aca
4189

Glu Gly Glu Gly Glu Asp Glu Glu Glu Glu Arg Tyr Tyr Lys Gly Thr
1365 1370 1375

atg cca gaa gtg tgt gta ctt gtc gtg acg cca cgc ttc tgg cct gtc
4237

Met Pro Glu Val Cys Val Leu Val Val Thr Pro Arg Phe Trp Pro Val
1380 1385 1390

gcc tcc gtc tgc caa atg ctc aac ccg gca acg tgc ctg ccc gca tac
4285

Ala Ser Val Cys Gln Met Leu Asn Pro Ala Thr Cys Leu Pro Ala Tyr
1395 1400 1405

ctg cgg ggg acc ata aac cac tac acc aac ttt tac agc aag agt cag
4333

Leu Arg Gly Thr Ile Asn His Tyr Thr Asn Phe Tyr Ser Lys Ser Gln
1410 1415 1420

agc cgc tcc agc tta gag aaa gag cca cag agg cgg ctg cag tgg acc
4381

Ser Arg Ser Ser Leu Glu Lys Glu Pro Gln Arg Arg Leu Gln Trp Thr
1425 1430 1435 1440

gag tcc ctg aac cct ggc tcg gca ggc ccc aat cca ccc ctc acc ttc

5053

Glu Ser Leu Asn Pro Gly Ser Ala Gly Pro Asn Pro Pro Leu Thr Phe
 1650 1655 1660

cac acc ctg cag att cga tcc cgg ggt gtg cct tac gcc tcc tgc act
 5101

His Thr Leu Gln Ile Arg Ser Arg Gly Val Pro Tyr Ala Ser Cys Thr
 1665 1670 1675 1680

gat aac cac acc ttc tcc act ttc cgg tagccctgga tatgggggttg
 5148

Asp Asn His Thr Phe Ser Thr Phe Arg
 1685

ggggtaggtg aggctggggc tttcatcaga aaataaaatg ctggaatttg aaaaaaaaaa
 5208

aaaaaaaaa
 5217

<210> 2

<211> 1689

<212> PRT

<213> Mus musculus

<400> 2

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Val | Gly | Glu | Leu | Arg | Tyr | Arg | Glu | Phe | Arg | Val | Pro | Leu | Gly | Pro |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Gly | Leu | His | Ala | Tyr | Pro | Asp | Glu | Leu | Ile | Arg | Gln | Arg | Val | Gly | His |
| | | 20 | | | | | | 25 | | | | 30 | | | |
| Asn | Gly | His | Pro | Glu | Tyr | Gln | Ile | Arg | Trp | Leu | Ile | Leu | Arg | Arg | Gly |
| | | 35 | | | | 40 | | | | | 45 | | | | |
| Asp | Asp | Gly | Asp | Arg | Asp | Ser | Thr | Val | Asp | Cys | Lys | Ala | Glu | His | Ile |
| | 50 | | | | 55 | | | | | 60 | | | | | |
| Leu | Leu | Trp | Met | Ser | Asp | Asp | Glu | Ile | Tyr | Ala | Asn | Cys | His | Lys | Met |
| | 65 | | | 70 | | | | | 75 | | | | | 80 | |
| Leu | Gly | Glu | Asn | Gly | Gln | Val | Ile | Ala | Pro | Ser | Arg | Glu | Ser | Thr | Glu |
| | | | 85 | | | | | 90 | | | | | 95 | | |
| Ala | Gly | Ala | Leu | Asp | Lys | Ser | Val | Leu | Gly | Glu | Met | Glu | Thr | Asp | Val |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Lys | Ser | Leu | Ile | Gln | Arg | Ala | Leu | Arg | Gln | Leu | Glu | Glu | Cys | Val | Gly |
| | 115 | | | | | | 120 | | | | | 125 | | | |
| Thr | Val | Pro | Pro | Ala | Pro | Leu | Leu | His | Thr | Val | His | Val | Leu | Ser | Ala |
| | 130 | | | | | 135 | | | | 140 | | | | | |
| Tyr | Ala | Ser | Ile | Glu | Pro | Leu | Thr | Gly | Ile | Phe | Lys | Asp | Arg | Arg | Val |
| | 145 | | | | 150 | | | | 155 | | | | | 160 | |
| Val | Asn | Leu | Leu | Met | His | Met | Leu | Ser | Ser | Pro | Asp | Tyr | Gln | Ile | Arg |
| | | | 165 | | | | | 170 | | | | | 175 | | |
| Trp | Ser | Ala | Gly | Arg | Met | Ile | Gln | Ala | Leu | Ser | Ser | His | Asp | Ala | Gly |
| | | 180 | | | | | 185 | | | | | 190 | | | |
| Thr | Arg | Thr | Gln | Ile | Leu | Leu | Ser | Leu | Ser | Gln | Gln | Glu | Ala | Ile | Glu |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Lys | His | Leu | Asp | Phe | Asp | Ser | Arg | Cys | Ala | Leu | Leu | Ala | Leu | Phe | Ala |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Gln | Ala | Thr | Leu | Thr | Glu | His | Pro | Met | Ser | Phe | Glu | Gly | Val | Gln | Leu |
| | 225 | | | | 230 | | | | | 235 | | | | 240 | |
| Pro | Gln | Val | Pro | Gly | Arg | Leu | Leu | Phe | Ser | Leu | Val | Lys | Arg | Tyr | Leu |
| | | | 245 | | | | | 250 | | | | | 255 | | |
| His | Val | Thr | Phe | Leu | Leu | Asp | Arg | Leu | Asn | Gly | Asp | Ala | Gly | Asp | Gln |
| | | 260 | | | | | 265 | | | | | 270 | | | |
| Gly | Ala | Gln | Asn | Asn | Phe | Ser | Pro | Glu | Glu | Leu | Asn | Val | Gly | Arg | Gly |
| | 275 | | | | | | 280 | | | | | 285 | | | |
| Arg | Leu | Glu | Leu | Glu | Phe | Ser | Met | Ala | Met | Gly | Thr | Leu | Ile | Ser | Glu |
| | 290 | | | | | | 295 | | | | | 300 | | | |

Leu Val Gln Ala Met Arg Trp Asp Gly Ala Ser Ser Arg Pro Glu Ser
 305 310 315 320
 Ser Ser Ser Ser Thr Phe Gln Pro Arg Pro Ala Gln Phe Arg Pro Tyr
 325 330 335
 Thr Gln Arg Phe Arg Arg Ser Arg Arg Phe Arg Pro Arg Ala Ser Phe
 340 345 350
 Ala Ser Phe Asn Thr Tyr Ala Leu Tyr Val Arg Asp Thr Leu Arg Pro
 355 360 365
 Gly Met Arg Val Arg Met Leu Glu Asn Tyr Glu Glu Ile Ala Ala Gly
 370 375 380
 Asp Glu Gly Gln Phe Arg Gln Ser Asn Asp Gly Val Pro Pro Ala Gln
 385 390 395 400
 Val Leu Trp Asp Ser Thr Gly His Thr Tyr Trp Val His Trp His Met
 405 410 415
 Leu Glu Ile Leu Gly Phe Glu Glu Asp Ile Glu Asp Val Ile Asp Ile
 420 425 430
 Glu Glu Leu Gln Glu Leu Gly Ala Asn Gly Ala Leu Ser Ile Val Pro
 435 440 445
 Pro Ser Gln Arg Trp Lys Pro Ile Thr Gln Leu Phe Ala Glu Pro Tyr
 450 455 460
 Val Val Pro Glu Glu Glu Asp Arg Glu Glu Ser Glu Asn Leu Thr Gln
 465 470 475 480
 Ala Glu Trp Trp Glu Leu Leu Phe Phe Ile Arg Gln Leu Ser Glu Ala
 485 490 495
 Glu Arg Leu His Ile Val Asp Leu Leu Gln Asp His Leu Glu Glu Glu
 500 505 510
 Arg Val Leu Asp Tyr Asp Met Leu Pro Glu Leu Thr Val Pro Val Asp
 515 520 525
 Leu Ala Gln Asp Leu Leu Leu Ser Leu Pro Gln Gln Leu Glu Asp Ser
 530 535 540
 Ala Leu Arg Asp Leu Phe Ser Cys Ser Val Tyr Arg Lys Tyr Gly Pro
 545 550 555 560
 Glu Val Leu Val Gly His Leu Ser Tyr Pro Phe Val Pro Gly Ala Gln
 565 570 575
 Pro Asn Leu Phe Gly Ala Asn Glu Glu Ser Glu Ala Lys Asp Pro Pro
 580 585 590
 Leu Gln Ser Ala Ser Pro Ala Leu Gln Arg Leu Val Glu Ser Leu Gly
 595 600 605
 Pro Glu Gly Glu Val Leu Val Glu Leu Glu Gln Ala Leu Gly Ser Glu
 610 615 620
 Ala Pro Gln Glu Thr Glu Val Lys Ser Cys Leu Leu Gln Leu Gln Glu
 625 630 635 640
 Gln Pro Gln Pro Phe Leu Ala Leu Met Arg Ser Leu Asp Thr Ser Ala
 645 650 655
 Ser Asn Lys Thr Leu His Leu Thr Val Leu Arg Ile Leu Met Gln Leu
 660 665 670
 Val Asn Phe Pro Glu Ala Leu Leu Leu Pro Trp His Glu Ala Met Asp
 675 680 685
 Ala Cys Val Thr Cys Leu Arg Ser Pro Asn Thr Asp Arg Glu Val Leu
 690 695 700
 Gln Glu Leu Ile Phe Phe Leu His Arg Leu Thr Thr Thr Ser Arg Asp
 705 710 715 720
 Tyr Ala Val Ile Leu Asn Gln His Gly Ala Arg Asp Ala Ile Ser Lys
 725 730 735
 Val Leu Glu Lys His Arg Gly Lys Leu Glu Leu Ala Gln Glu Leu Arg
 740 745 750
 Asp Met Val Ser Lys Cys Glu Lys His Ala His Leu Tyr Arg Lys Leu
 755 760 765
 Thr Thr Asn Ile Leu Gly Gly Cys Ile Gln Met Val Leu Gly Gln Ile
 770 775 780
 Glu Asp His Arg Arg Thr His Arg Pro Ile Gln Ile Pro Phe Phe Asp
 785 790 795 800
 Val Phe Leu Arg Tyr Leu Cys Gln Gly Ser Ser Glu Glu Met Lys Lys
 805 810 815
 Asn Arg Tyr Trp Glu Lys Val Glu Val Ser Ser Asn Pro Gln Arg Ala
 820 825 830

Ser Arg Leu Thr Asp Arg Asn Pro Lys Thr Tyr Trp Glu Ser Ser Gly
 835 840 845
 Arg Ala Gly Ser His Phe Ile Thr Leu His Met Arg Pro Gly Val Ile
 850 855 860
 Ile Arg Gln Leu Thr Leu Val Ala Gly Glu Asp Ser Ser Tyr Met
 865 870 875 880
 Pro Ala Trp Val Val Val Cys Gly Gly Asn Ser Ile Lys Ser Val Asn
 885 890 895
 Lys Glu Leu Asn Thr Val Asn Val Met Pro Ser Ala Ser Arg Val Thr
 900 905 910
 Leu Leu Glu Asn Leu Thr Arg Phe Trp Pro Ile Ile Gln Ile Arg Ile
 915 920 925
 Lys Arg Cys Gln Gln Gly Gly Ile Asn Thr Arg Ile Arg Gly Leu Glu
 930 935 940
 Val Leu Gly Pro Lys Pro Thr Phe Trp Pro Val Phe Arg Glu Gln Leu
 945 950 955 960
 Cys Arg His Thr Arg Leu Phe Tyr Met Val Arg Ala Gln Ala Trp Ser
 965 970 975
 Gln Asp Ile Ala Glu Asp Arg Arg Ser Leu Leu His Leu Ser Ser Arg
 980 985 990
 Leu Asn Gly Ala Leu Arg His Glu Gln Asn Phe Ala Glu Arg Phe Leu
 995 1000 1005
 Pro Asp Met Glu Ala Ala Gln Ala Leu Ser Lys Thr Cys Trp Glu Ala
 1010 1015 1020
 Leu Val Ser Pro Leu Val Gln Asn Ile Thr Ser Pro Asp Glu Asp Ser
 1025 1030 1035 1040
 Thr Ser Ser Leu Gly Trp Leu Leu Asp Gln Tyr Leu Gly Cys Arg Glu
 1045 1050 1055
 Ala Ala Tyr Asn Pro Gln Ser Arg Ala Ala Ala Phe Ser Ser Arg Val
 1060 1065 1070
 Arg Arg Leu Thr His Leu Leu Val His Val Glu Pro Arg Glu Ala Ala
 1075 1080 1085
 Pro Pro Val Val Ala Ile Pro Arg Ser Lys Gly Arg Asn Arg Ile His
 1090 1095 1100
 Asp Trp Ser Tyr Leu Ile Thr Arg Gly Leu Pro Ser Ser Ile Met Lys
 1105 1110 1115 1120
 Asn Leu Thr Arg Cys Trp Arg Ser Val Val Glu Glu Gln Met Asn Lys
 1125 1130 1135
 Phe Leu Ser Ala Ser Trp Lys Asp Asp Phe Val Pro Arg Tyr Cys
 1140 1145 1150
 Glu Arg Tyr Tyr Val Leu Gln Lys Ser Ser Ser Glu Leu Phe Gly Pro
 1155 1160 1165
 Arg Ala Ala Phe Leu Leu Ala Met Arg Asn Gly Cys Ala Asp Ala Val
 1170 1175 1180
 Arg Arg Leu Pro Phe Leu Arg Ala Ala His Val Lys Gln Gln Phe Ala
 1185 1190 1195 1200
 Arg His Ile Asp Gln Arg Ile Gln Gly Ser Arg Met Gly Gly Ala Arg
 1205 1210 1215
 Gly Met Glu Met Leu Ala Gln Leu Gln Arg Cys Leu Glu Ser Val Leu
 1220 1225 1230
 Ile Phe Ser Pro Leu Glu Ile Ala Thr Thr Phe Glu His Tyr Tyr Gln
 1235 1240 1245
 His Tyr Met Ala Asp Arg Leu Leu Ser Val Gly Ser Ser Trp Leu Glu
 1250 1255 1260
 Gly Ala Val Leu Glu Gln Ile Gly Pro Cys Phe Pro Ser Arg Leu Pro
 1265 1270 1275 1280
 Gln Gln Met Leu Gln Ser Leu Asn Val Ser Glu Glu Leu Gln Arg Gln
 1285 1290 1295
 Phe His Val Tyr Gln Leu Gln Gln Leu Asp Gln Glu Leu Leu Lys Leu
 1300 1305 1310
 Glu Asp Thr Glu Lys Lys Ile Gln Val Ala His Glu Asp Ser Gly Arg
 1315 1320 1325
 Glu Asp Lys Ser Lys Lys Glu Ala Ile Gly Glu Ala Ala Val
 1330 1335 1340
 Ala Met Ala Glu Glu Glu Asp Gln Gly Lys Lys Glu Glu Gly Glu Glu
 1345 1350 1355 1360

Glu Gly Glu Gly Glu Asp Glu Glu Glu Glu Arg Tyr Tyr Lys Gly Thr
 1365 1370 1375
 Met Pro Glu Val Cys Val Leu Val Val Thr Pro Arg Phe Trp Pro Val
 1380 1385 1390
 Ala Ser Val Cys Gln Met Leu Asn Pro Ala Thr Cys Leu Pro Ala Tyr
 1395 1400 1405
 Leu Arg Gly Thr Ile Asn His Tyr Thr Asn Phe Tyr Ser Lys Ser Gln
 1410 1415 1420
 Ser Arg Ser Ser Leu Glu Lys Glu Pro Gln Arg Arg Leu Gln Trp Thr
 1425 1430 1435 1440
 Trp Gln Gly Arg Ala Glu Val Gln Phe Gly Gly Gln Ile Leu His Val
 1445 1450 1455
 Ser Thr Val Gln Met Trp Leu Leu Leu His Leu Asn Asn Gln Lys Glu
 1460 1465 1470
 Val Ser Val Glu Ser Leu Gln Ala Ile Ser Glu Leu Pro Pro Asp Val
 1475 1480 1485
 Leu His Arg Ala Ile Gly Pro Leu Thr Ser Ser Arg Gly Pro Leu Asp
 1490 1495 1500
 Leu Gln Glu Gln Lys Asn Val Pro Gly Gly Val Leu Lys Ile Arg Asp
 1505 1510 1515 1520
 Asp Ser Glu Glu Pro Arg Pro Arg Arg Gly Asn Val Trp Leu Ile Pro
 1525 1530 1535
 Pro Gln Thr Tyr Leu Gln Ala Glu Ala Glu Glu Gly Arg Asn Met Glu
 1540 1545 1550
 Lys Arg Arg Asn Leu Leu Asn Cys Leu Val Val Arg Ile Leu Lys Ala
 1555 1560 1565
 His Gly Asp Glu Gly Leu His Val Asp Arg Leu Val Tyr Leu Val Leu
 1570 1575 1580
 Glu Ala Trp Glu Lys Gly Pro Cys Pro Ala Arg Gly Leu Val Ser Ser
 1585 1590 1595 1600
 Leu Gly Arg Gly Ala Thr Cys Arg Ser Ser Asp Val Leu Ser Cys Ile
 1605 1610 1615
 Leu His Leu Leu Val Lys Gly Thr Leu Arg Arg His Asp Asp Arg Pro
 1620 1625 1630
 Gln Val Leu Tyr Tyr Ala Val Pro Val Thr Val Met Glu Pro His Met
 1635 1640 1645
 Glu Ser Leu Asn Pro Gly Ser Ala Gly Pro Asn Pro Pro Leu Thr Phe
 1650 1655 1660
 His Thr Leu Gln Ile Arg Ser Arg Gly Val Pro Tyr Ala Ser Cys Thr
 1665 1670 1675 1680
 Asp Asn His Thr Phe Ser Thr Phe Arg
 1685

<210> 3
 <211> 5253
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (87)..(5183)

<400> 3
 gtcgccgcca gcgtctgtgc cgcgtccctt gctctgtgaa ggacaggcct cgcgccagga 60
 ccccggtgga cttctgaggt gccagg atg gtg gga gaa ctg cgc tac agg gaa 113
 Met Val Gly Glu Leu Arg Tyr Arg Glu
 1 5
 ttc agg gtg ccc ctg ggg ccc ggc tta cat gcc tat cct gat gag ctg 161
 Phe Arg Val Pro Leu Gly Pro Gly Leu His Ala Tyr Pro Asp Glu Leu
 10 15 20 25
 atc cgc cag cgc gtg ggc cat gat ggg cat cct gag tac cag atc cgt 209

| | |
|---|-----|
| Ile Arg Gln Arg Val Gly His Asp Gly His Pro Glu Tyr Gln Ile Arg | |
| 30 35 40 | |
| tgg ctc atc ctg cgg cgt ggc gat gag ggg gac ggg ggc tct ggc caa | 257 |
| Trp Leu Ile Leu Arg Arg Gly Asp Glu Gly Asp Gly Gly Ser Gly Gln | |
| 45 50 55 | |
| gtg gac tgc aag gct gag cac atc ctg ctg tgg atg tcc aag gat gag | 305 |
| Val Asp Cys Lys Ala Glu His Ile Leu Leu Trp Met Ser Lys Asp Glu | |
| 60 65 70 | |
| atc tat gcc aac tgc cac aag atg ctg ggc gag gat ggc cag gtc atc | 353 |
| Ile Tyr Ala Asn Cys His Lys Met Leu Gly Glu Asp Gly Gln Val Ile | |
| 75 80 85 | |
| ggg ccc tcc cag gag tct gca ggg gag gtt ggg gcc ctg gac aaa tct | 401 |
| Gly Pro Ser Gln Glu Ser Ala Gly Glu Val Gly Ala Leu Asp Lys Ser | |
| 90 95 100 105 | |
| gtg ctg gag gag atg gaa acc gat gtg aag tcc ctc att cag aga gcc | 449 |
| Val Leu Glu Glu Met Glu Thr Asp Val Lys Ser Leu Ile Gln Arg Ala | |
| 110 115 120 | |
| ctt cgg cag ctg gag gag tgt gtg ggc act atc cct cct gct cct cta | 497 |
| Leu Arg Gln Leu Glu Glu Cys Val Gly Thr Ile Pro Pro Ala Pro Leu | |
| 125 130 135 | |
| ctt cac act gtc cac gtg ctc agc gcc tat gcc agc att gag ccc ctc | 545 |
| Leu His Thr Val His Val Leu Ser Ala Tyr Ala Ser Ile Glu Pro Leu | |
| 140 145 150 | |
| act gga gta ttc aag gac cca agg gtc ctg gac ttg ctc atg cac atg | 593 |
| Thr Gly Val Phe Lys Asp Pro Arg Val Leu Asp Leu Met His Met | |
| 155 160 165 | |
| ttg agt agt cct gat tat cag att cgc tgg agt gca ggc cgg atg ata | 641 |
| Leu Ser Ser Pro Asp Tyr Gln Ile Arg Trp Ser Ala Gly Arg Met Ile | |
| 170 175 180 185 | |
| caa gcc ctg tcc tcc cat gac gct ggg acc cgg act cag atc ctt ctg | 689 |
| Gln Ala Leu Ser Ser His Asp Ala Gly Thr Arg Thr Gln Ile Leu Leu | |
| 190 195 200 | |
| tca ctg agc caa caa gaa gcc att gag aaa cac ctg gat ttt gac agc | 737 |
| Ser Leu Ser Gln Gln Glu Ala Ile Glu Lys His Leu Asp Phe Asp Ser | |
| 205 210 215 | |
| cgc tgt gct ctg cta gca ctg ttt gca cag gcc acg ctc tct gaa cac | 785 |
| Arg Cys Ala Leu Leu Ala Leu Phe Ala Gln Ala Thr Leu Ser Glu His | |
| 220 225 230 | |
| ccc atg tct ttc gag ggc att cag cta cca cag gtc cca gga agg gtg | 833 |
| Pro Met Ser Phe Glu Gly Ile Gln Leu Pro Gln Val Pro Gly Arg Val | |
| 235 240 245 | |
| ctc ttc tcc ctg gtg aag cgg tat ttg cat gtc acc tcg ctc ctg gat | 881 |
| Leu Phe Ser Leu Val Lys Arg Tyr Leu His Val Thr Ser Leu Leu Asp | |
| 250 255 260 265 | |
| cag ctg aac gac agt gct gcg gag cca gga gcc cag aac acc tct gct | 929 |
| Gln Leu Asn Asp Ser Ala Ala Glu Pro Gly Ala Gln Asn Thr Ser Ala | |
| 270 275 280 | |
| cct gag gag ttg agt ggg gag agg ggt caa ctg gag ctg gag ttc agt | 977 |
| Pro Glu Glu Leu Ser Gly Glu Arg Gly Gln Leu Glu Leu Glu Phe Ser | |
| 285 290 295 | |

atg gcc atg ggc acc ctg atc tcg gag ctg gtg caa gcc atg cgc tgg
1025
Met Ala Met Gly Thr Leu Ile Ser Glu Leu Val Gln Ala Met Arg Trp
300 305 310

gac cag gcc tca gac aga cca agg agc tca gca cgg tcc ccc ggt tcc
1073
Asp Gln Ala Ser Asp Arg Pro Arg Ser Ser Ala Arg Ser Pro Gly Ser
315 320 325

atc ttc cag cct cag ctg gca gat gtg agc cca ggg ctc ccc gct gcc
1121
Ile Phe Gln Pro Gln Leu Ala Asp Val Ser Pro Gly Leu Pro Ala Ala
330 335 340 345

cag gct cag ccc tcc ttc agg agg tca aga cgt ttt cgc cct cgt tct
1169
Gln Ala Gln Pro Ser Phe Arg Arg Ser Arg Arg Phe Arg Pro Arg Ser
350 355 360

gag ttc gca agt ggc aat acc tat gct ttg tat gtg cgg gac aca ctg
1217
Glu Phe Ala Ser Gly Asn Thr Tyr Ala Leu Tyr Val Arg Asp Thr Leu
365 370 375

cag ccg ggg atg cga gtg cgg atg ctg gat gat tat gag gag atc agt
1265
Gln Pro Gly Met Arg Val Arg Met Leu Asp Asp Tyr Glu Glu Ile Ser
380 385 390

gcc ggg gat gag ggc gag ttt cgg cag agc aac aac ggt gtg cct cct
1313
Ala Gly Asp Glu Gly Glu Phe Arg Gln Ser Asn Asn Gly Val Pro Pro
395 400 405

gtg cag gta ttt tgg gag tca aca ggc cgc acc tat tgg gtg cac tgg
1361
Val Gln Val Phe Trp Glu Ser Thr Gly Arg Thr Tyr Trp Val His Trp
410 415 420 425

cac atg ctg gag atc ttg ggc ttt gag gaa gac att gag gac atg gtt
1409
His Met Leu Glu Ile Leu Gly Phe Glu Glu Asp Ile Glu Asp Met Val
430 435 440

gag gct gat gag tac caa ggg gca gtg gcc agt aga gtc ctg ggt aga
1457
Glu Ala Asp Glu Tyr Gln Gly Ala Val Ala Ser Arg Val Leu Gly Arg
445 450 455

gcc ctg cct gcc tgg cgc tgg agg ccc atg aca gaa ctc tat gct gtg
1505
Ala Leu Pro Ala Trp Arg Trp Arg Pro Met Thr Glu Leu Tyr Ala Val
460 465 470

cct tat gtg ctg cct gag gat gag gac act gag gag tgt gaa cac ctg
1553
Pro Tyr Val Leu Pro Glu Asp Glu Asp Thr Glu Glu Cys Glu His Leu
475 480 485

acc ctg gct gag tgg tgg gaa ctc ctc ttc ttc atc aag aag ctg gat
1601
Thr Leu Ala Glu Trp Trp Glu Leu Leu Phe Phe Ile Lys Lys Leu Asp
490 495 500 505

gga cct gac cat cag gag gtt ctc cag atc ctc cag gag aac cta gat
1649
Gly Pro Asp His Gln Glu Val Leu Gln Ile Leu Gln Glu Asn Leu Asp
510 515 520

ggg gag att ctg gat gat gag atc cta gct gaa ctg gcc gtg ccc ata
1697
Gly Glu Ile Leu Asp Asp Glu Ile Leu Ala Glu Leu Ala Val Pro Ile
525 530 535

gaa ttg gcc cag gac ttg ctg ctg act ctg cca cag cga ctc aat gac
1745
Glu Leu Ala Gln Asp Leu Leu Leu Thr Leu Pro Gln Arg Leu Asn Asp
540 545 550

agt gcc ctc agg gac ctg atc aac tgc cat gtc tac aag aag tat ggg
1793
Ser Ala Leu Arg Asp Leu Ile Asn Cys His Val Tyr Lys Lys Tyr Gly
555 560 565

cct gaa gcc cta gca ggg aac caa gcc tac cca tcc ctt cta gaa gcc
1841
Pro Glu Ala Leu Ala Gly Asn Gln Ala Tyr Pro Ser Leu Leu Glu Ala
570 575 580 585

caa gaa gat gtc ctc ctg cta gac gcg cag gcc cag gct aag gac tca
1889
Gln Glu Asp Val Leu Leu Leu Asp Ala Gln Ala Gln Ala Lys Asp Ser
590 595 600

gaa gat gca gcc aaa gtg gaa gca aaa gaa ccc cca tct cag agt ccc
1937
Glu Asp Ala Ala Lys Val Glu Ala Lys Glu Pro Pro Ser Gln Ser Pro
605 610 615

aac act ccc ctg cag cgt ctg gtg gag ggt tat ggt cca gct ggg aaa
1985
Asn Thr Pro Leu Gln Arg Leu Val Glu Gly Tyr Gly Pro Ala Gly Lys
620 625 630

atc ctc ctg gat cta gag caa gcc ctc agc tca gag ggg acc cag gag
2033
Ile Leu Leu Asp Leu Glu Gln Ala Leu Ser Ser Glu Gly Thr Gln Glu
635 640 645

aac aag gtc aag cca ctc ctg ctg cag ctg cag cgg cag ccg cag ccc
2081
Asn Lys Val Lys Pro Leu Leu Leu Gln Leu Gln Arg Gln Pro Gln Pro
650 655 660 665

ttc ctg gca ctg atg cag agc ctg gac act ccg gag act aac agg acc
2129
Phe Leu Ala Leu Met Gln Ser Leu Asp Thr Pro Glu Thr Asn Arg Thr
670 675 680

ctg cac ctg act gtg ctg aga atc ctg aag cag ctg gtg gac ttc ccc
2177
Leu His Leu Thr Val Leu Arg Ile Leu Lys Gln Leu Val Asp Phe Pro
685 690 695

gag gca ctg ctg ctc ccc tgg cac gag gcc gtg gat gcc tgc atg gcc
2225
Glu Ala Leu Leu Leu Pro Trp His Glu Ala Val Asp Ala Cys Met Ala
700 705 710

tgc ctg cgg tcc cca aac act gat cga gag gtg ctc cag gaa ctg att

Cys Leu Arg Ser Pro Asn Thr Asp Arg Glu Val Leu Gln Glu Leu Ile
715 720 725

Phe Phe Leu His Arg Leu Thr Ser Val Ser Arg Asp Tyr Ala Val Val
730 735 740 745

Leu Asn Gln Leu Gly Ala Arg Asp Ala Ile Ser Lys Ala Leu Glu Lys
750 755 760

His Leu Gly Lys Leu Glu Leu Ala Gln Glu Leu Arg Asp Met Val Phe
765 770 775

Lys Cys Glu Lys His Ala His Leu Tyr Arg Lys Leu Ile Thr Asn Ile
780 785 790

Leu Gly Gly Cys Ile Gln Met Val Leu Gly Gln Ile Glu Asp His Arg
795 800 805

Arg Thr His Arg Pro Ile Asn Ile Pro Phe Phe Asp Val Phe Leu Arg
810 815 820 825

Tyr Leu Cys Gln Gly Ser Ser Val Glu Val Lys Glu Asp Lys Cys Trp
830 835 840

Glu Lys Val Glu Val Ser Ser Asn Pro His Arg Ala Ser Lys Leu Thr
845 850 855

Asp His Asn Pro Lys Thr Tyr Trp Glu Ser Asn Gly Ser Ala Gly Ser
860 865 870

His Tyr Ile Thr Leu His Met Arg Arg Gly Ile Leu Ile Arg Gln Leu
875 880 885

Thr Leu Leu Val Ala Ser Glu Asp Ser Ser Tyr Met Pro Ala Arg Val
890 895 900 905

Val Val Cys Gly Gly Asp Ser Thr Ser Ser Leu His Thr Glu Leu Asn
910 915 920

tcg gtg aat gtg atg ccc tct gcc agc cgg gtg atc ctc ctg gag aac
2897

| | | | | | | | | | | | | | | | | | |
|------|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|------|------|
| Ser | Val | Asn | Val | Met | Pro | Ser | Ala | Ser | Arg | Val | Ile | Leu | Glu | Asn | | | |
| | | | 925 | | | | | | | 930 | | | | | 935 | | |
| ctg | acc | cgc | ttc | tgg | ccc | atc | atc | cag | atc | cgc | ata | aag | cgc | tgc | cag | | |
| 2945 | | | | | | | | | | | | | | | | | |
| Leu | Thr | Arg | Phe | Trp | Pro | Ile | Ile | Gln | Ile | Arg | Ile | Lys | Arg | Cys | Gln | | |
| | | 940 | | | | | | | 945 | | | | | | 950 | | |
| cag | ggt | ggc | att | gat | acg | cgc | att | cgg | ggg | tta | gag | atc | cta | ggc | ccc | | |
| 2993 | | | | | | | | | | | | | | | | | |
| Gln | Gly | Gly | Ile | Asp | Thr | Arg | Ile | Arg | Gly | Leu | Glu | Ile | Leu | Gly | Pro | | |
| | | 955 | | | | | | | 960 | | | | | | 965 | | |
| aag | ccc | acg | ttc | tgg | cca | gtg | ttc | cgg | gag | cag | ctc | tgt | cgt | cac | aca | | |
| 3041 | | | | | | | | | | | | | | | | | |
| Lys | Pro | Thr | Phe | Trp | Pro | Val | Phe | Arg | Glu | Gln | Leu | Cys | Arg | His | Thr | | |
| | | 970 | | | | | | | 975 | | | | | | 980 | 985 | |
| cgc | ctc | ttc | tac | atg | ggt | cgg | gca | cag | gcc | tgg | agc | cag | gac | atg | gca | | |
| 3089 | | | | | | | | | | | | | | | | | |
| Arg | Leu | Phe | Tyr | Met | Val | Arg | Ala | Gln | Ala | Trp | Ser | Gln | Asp | Met | Ala | | |
| | | | | | 990 | | | | | | | 995 | | | | 1000 | |
| gag | gac | cgc | agg | agc | ctc | ctg | cac | ctg | agt | tct | aga | ctc | aac | ggt | gct | | |
| 3137 | | | | | | | | | | | | | | | | | |
| Glu | Asp | Arg | Arg | Ser | Leu | Leu | His | Leu | Ser | Ser | Arg | Leu | Asn | Gly | Ala | | |
| | | | | | 1005 | | | | | | | 1010 | | | | 1015 | |
| ctg | cgc | cag | gag | cag | aat | ttt | gct | gac | cgc | ttc | ctc | cct | gat | gac | gag | | |
| 3185 | | | | | | | | | | | | | | | | | |
| Leu | Arg | Gln | Glu | Gln | Asn | Phe | Ala | Asp | Arg | Phe | Leu | Pro | Asp | Asp | Glu | | |
| | | | | | 1020 | | | | | | | 1025 | | | | 1030 | |
| gct | gcc | caa | gct | ctg | ggc | aag | acc | tgc | tgg | gag | gcc | ctg | gtc | agc | ccc | | |
| 3233 | | | | | | | | | | | | | | | | | |
| Ala | Ala | Gln | Ala | Leu | Gly | Lys | Thr | Cys | Trp | Glu | Ala | Leu | Val | Ser | Pro | | |
| | | | | | 1035 | | | | | | | 1040 | | | | 1045 | |
| gtg | gtg | cag | aac | atc | acc | tcc | cct | gat | gag | gat | ggc | att | agc | ccc | ctg | | |
| 3281 | | | | | | | | | | | | | | | | | |
| Val | Val | Gln | Asn | Ile | Thr | Ser | Pro | Asp | Glu | Asp | Gly | Ile | Ser | Pro | Leu | | |
| | | | | | 1050 | | | | | | | 1055 | | | | 1060 | 1065 |
| ggt | tgg | ctg | ctg | gac | cag | tac | ctg | gag | tgt | cag | gaa | gct | gtc | ttc | aac | | |
| 3329 | | | | | | | | | | | | | | | | | |
| Gly | Trp | Leu | Leu | Asp | Gln | Tyr | Leu | Glu | Cys | Gln | Glu | Ala | Val | Phe | Asn | | |
| | | | | | 1070 | | | | | | | 1075 | | | | 1080 | |
| ccc | cag | agc | cgc | ggc | cca | gct | ttc | ttc | tcg | cgg | gtg | cgc | cgt | ctc | act | | |
| 3377 | | | | | | | | | | | | | | | | | |
| Pro | Gln | Ser | Arg | Gly | Pro | Ala | Phe | Phe | Ser | Arg | Val | Arg | Arg | Leu | Thr | | |
| | | | | | 1085 | | | | | | | 1090 | | | | 1095 | |
| cac | ctg | ctg | gtg | cat | gtc | gag | ccc | tgt | gag | gca | ccc | cct | cct | gtg | gtg | | |
| 3425 | | | | | | | | | | | | | | | | | |
| His | Leu | Leu | Val | His | Val | Glu | Pro | Cys | Glu | Ala | Pro | Pro | Pro | Val | Val | | |
| | | | | | 1100 | | | | | | | 1105 | | | | 1110 | |
| gcc | act | cct | cgg | ccc | aaa | ggc | aga | aac | aga | agc | cac | gac | tgg | agc | tcc | | |
| 3473 | | | | | | | | | | | | | | | | | |
| Ala | Thr | Pro | Arg | Pro | Lys | Gly | Arg | Asn | Arg | Ser | His | Asp | Trp | Ser | Ser | | |
| | | | | | 1115 | | | | | | | 1120 | | | | 1125 | |
| ttg | gct | acc | cgg | ggc | ctt | cca | agc | agc | atc | atg | aga | aac | ctg | acg | cgc | | |
| 3521 | | | | | | | | | | | | | | | | | |
| Leu | Ala | Thr | Arg | Gly | Leu | Pro | Ser | Ser | Ile | Met | Arg | Asn | Leu | Thr | Arg | | |

1130 1135 1140 1145
 tgt tgg cgg gcc gtg gtg gag aag cag gtg aac aat ttt ctg acc tca
 3569
 Cys Trp Arg Ala Val Val Glu Lys Gln Val Asn Asn Phe Leu Thr Ser
 1150 1155 1160
 tcc tgg cgg gat gat gac ttt gtg cca cgc tac tgt gag cac ttt aat
 3617
 Ser Trp Arg Asp Asp Asp Phe Val Pro Arg Tyr Cys Glu His Phe Asn
 1165 1170 1175
 att ctg cag aac tca agc tct gaa ctg ttt ggg cct cgg gca gcc ttc
 3665
 Ile Leu Gln Asn Ser Ser Ser Glu Leu Phe Gly Pro Arg Ala Ala Phe
 1180 1185 1190
 ttg ctg gcg ctg caa aat ggc tgt gcg gga gcc ttg ctg aag ctc cct
 3713
 Leu Leu Ala Leu Gln Asn Gly Cys Ala Gly Ala Leu Leu Lys Leu Pro
 1195 1200 1205
 ttt ctc aaa gct gcc cac gtg agt gag cag ttc gcc cgg cac att gac
 3761
 Phe Leu Lys Ala Ala His Val Ser Glu Gln Phe Ala Arg His Ile Asp
 1210 1215 1220 1225
 cag cag atc cag ggc agc cgg atc ggt gga gcc cag gaa atg gag agg
 3809
 Gln Gln Ile Gln Gly Ser Arg Ile Gly Gly Ala Gln Glu Met Glu Arg
 1230 1235 1240
 ctg gca cag ctg cag caa tgc ctg caa gct gtc ctg att ttc tcc ggc
 3857
 Leu Ala Gln Leu Gln Gln Cys Leu Gln Ala Val Leu Ile Phe Ser Gly
 1245 1250 1255
 ttg gag ata gcc acc act ttt gag cat tat tac cag cac tac atg gcg
 3905
 Leu Glu Ile Ala Thr Thr Phe Glu His Tyr Tyr Gln His Tyr Met Ala
 1260 1265 1270
 gac cgt ctc ctg ggc gtg gtc tcg agc tgg ctg gag ggg gcc gtg ctg
 3953
 Asp Arg Leu Leu Gly Val Val Ser Ser Trp Leu Glu Gly Ala Val Leu
 1275 1280 1285
 gag cag atc ggt ccc tgc ttc ccc aac cgc ctc ccc cag cag atg ttg
 4001
 Glu Gln Ile Gly Pro Cys Phe Pro Asn Arg Leu Pro Gln Gln Met Leu
 1290 1295 1300 1305
 cag agc ctg agc acc tct aag gag ctg cag cgc cag ttc cac gtc tac
 4049
 Gln Ser Leu Ser Thr Ser Lys Glu Leu Gln Arg Gln Phe His Val Tyr
 1310 1315 1320
 cag ctc cag cag ctg gat cag gaa ctc cta aag ctg gag gat aca gag
 4097
 Gln Leu Gln Gln Leu Asp Gln Glu Leu Leu Lys Leu Glu Asp Thr Glu
 1325 1330 1335
 aag aaa ata cag gtg ggc ctt ggg gcc agt ggc aag gag cac aag agc
 4145
 Lys Lys Ile Gln Val Gly Leu Gly Ala Ser Gly Lys Glu His Lys Ser
 1340 1345 1350

cct cag acg tac ctg caa gct gag ggt gaa gac ggc cag aac ttg gag
4769
Pro Gln Thr Tyr Leu Gln Ala Glu Gly Glu Asp Gly Gln Asn Leu Glu
1550 1555 1560

aag aga cgg aat ctt ctg aac tgc ctc atc gtc cga atc ctc aag gcc
4817
Lys Arg Arg Asn Leu Leu Asn Cys Leu Ile Val Arg Ile Leu Lys Ala
1565 1570 1575

cat gga gat gag ggg ctg cac att gac cag ctt gtc tgt ctg gtg ctg
4865
His Gly Asp Glu Gly Leu His Ile Asp Gln Leu Val Cys Leu Val Leu
1580 1585 1590

gag gct tgg cag aag ggc ccg tgt cct ccc agg ggt ttg gtc agc agc
4913
Glu Ala Trp Gln Lys Gly Pro Cys Pro Pro Arg Gly Leu Val Ser Ser
1595 1600 1605

ctt ggt aag ggg tct gca tgc agc agc act gac gtc ctc tcc tgc atc
4961
Leu Gly Lys Gly Ser Ala Cys Ser Ser Thr Asp Val Leu Ser Cys Ile
1610 1615 1620 1625

cta cac ctc ctg ggc aag ggc acg ctg aga cgc cat gac gac cgg ccc
5009
Leu His Leu Leu Gly Lys Gly Thr Leu Arg Arg His Asp Asp Arg Pro
1630 1635 1640

cag gtg ctg tcc tat gca gtc cct gtg act gtc atg gag cct cac act
5057
Gln Val Leu Ser Tyr Ala Val Pro Val Thr Val Met Glu Pro His Thr
1645 1650 1655

gag tcc ctg aac cca ggc tcc tca ggc ccc aac cca ccc ctc acc ttc
5105
Glu Ser Leu Asn Pro Gly Ser Ser Gly Pro Asn Pro Pro Leu Thr Phe
1660 1665 1670

cat acc cta cag att cgc tcc cgg ggt gtg ccc tat gcc tcc tgc act
5153
His Thr Leu Gln Ile Arg Ser Arg Gly Val Pro Tyr Ala Ser Cys Thr
1675 1680 1685

gcc acc cag agc ttc tct acc ttc cgg tag ccctagactt ggggtcaggg
5203
Ala Thr Gln Ser Phe Ser Thr Phe Arg
1690 1695

gaaggtagag ctggagcttt tacagaaatt aaacccaaga gtttgattat
5253

<210> 4
<211> 1698
<212> PRT
<213> Homo sapiens

<400> 4
Met Val Gly Glu Leu Arg Tyr Arg Glu Phe Arg Val Pro Leu Gly Pro
1 5 10 15
Gly Leu His Ala Tyr Pro Asp Glu Leu Ile Arg Gln Arg Val Gly His
20 25 30
Asp Gly His Pro Glu Tyr Gln Ile Arg Trp Leu Ile Leu Arg Arg Gly
35 40 45
Asp Glu Gly Asp Gly Gly Ser Gly Gln Val Asp Cys Lys Ala Glu His
50 55 60
Ile Leu Leu Trp Met Ser Lys Asp Glu Ile Tyr Ala Asn Cys His Lys
65 70 75 80
Met Leu Gly Glu Asp Gly Gln Val Ile Gly Pro Ser Gln Glu Ser Ala

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | | | | | 85 | | | | | 90 | | | | | 95 |
| Gly | Glu | Val | Gly | Ala | Leu | Asp | Lys | Ser | Val | Leu | Glu | Glu | Met | Glu | Thr |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Asp | Val | Lys | Ser | Leu | Ile | Gln | Arg | Ala | Leu | Arg | Gln | Leu | Glu | Glu | Cys |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Val | Gly | Thr | Ile | Pro | Pro | Ala | Pro | Leu | Leu | His | Thr | Val | His | Val | Leu |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Ser | Ala | Tyr | Ala | Ser | Ile | Glu | Pro | Leu | Thr | Gly | Val | Phe | Lys | Asp | Pro |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Arg | Val | Leu | Asp | Leu | Leu | Met | His | Met | Leu | Ser | Ser | Pro | Asp | Tyr | Gln |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Ile | Arg | Trp | Ser | Ala | Gly | Arg | Met | Ile | Gln | Ala | Leu | Ser | Ser | His | Asp |
| | | | 180 | | | | | 185 | | | | | | 190 | |
| Ala | Gly | Thr | Arg | Thr | Gln | Ile | Leu | Leu | Ser | Leu | Ser | Gln | Gln | Glu | Ala |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Ile | Glu | Lys | His | Leu | Asp | Phe | Asp | Ser | Arg | Cys | Ala | Leu | Leu | Ala | Leu |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Phe | Ala | Gln | Ala | Thr | Leu | Ser | Glu | His | Pro | Met | Ser | Phe | Glu | Gly | Ile |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Gln | Leu | Pro | Gln | Val | Pro | Gly | Arg | Val | Leu | Phe | Ser | Leu | Val | Lys | Arg |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Tyr | Leu | His | Val | Thr | Ser | Leu | Leu | Asp | Gln | Leu | Asn | Asp | Ser | Ala | Ala |
| | | | 260 | | | | | 265 | | | | | | 270 | |
| Glu | Pro | Gly | Ala | Gln | Asn | Thr | Ser | Ala | Pro | Glu | Glu | Leu | Ser | Gly | Glu |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Arg | Gly | Gln | Leu | Glu | Leu | Glu | Phe | Ser | Met | Ala | Met | Gly | Thr | Leu | Ile |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Ser | Glu | Leu | Val | Gln | Ala | Met | Arg | Trp | Asp | Gln | Ala | Ser | Asp | Arg | Pro |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Arg | Ser | Ser | Ala | Arg | Ser | Pro | Gly | Ser | Ile | Phe | Gln | Pro | Gln | Leu | Ala |
| | | | 325 | | | | | | 330 | | | | | 335 | |
| Asp | Val | Ser | Pro | Gly | Leu | Pro | Ala | Ala | Gln | Ala | Gln | Pro | Ser | Phe | Arg |
| | | | 340 | | | | | 345 | | | | | | 350 | |
| Arg | Ser | Arg | Arg | Phe | Arg | Pro | Arg | Ser | Glu | Phe | Ala | Ser | Gly | Asn | Thr |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| Tyr | Ala | Leu | Tyr | Val | Arg | Asp | Thr | Leu | Gln | Pro | Gly | Met | Arg | Val | Arg |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Met | Leu | Asp | Asp | Tyr | Glu | Glu | Ile | Ser | Ala | Gly | Asp | Glu | Gly | Glu | Phe |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Arg | Gln | Ser | Asn | Asn | Gly | Val | Pro | Pro | Val | Gln | Val | Phe | Trp | Glu | Ser |
| | | | 405 | | | | | | 410 | | | | | 415 | |
| Thr | Gly | Arg | Thr | Tyr | Trp | Val | His | Trp | His | Met | Leu | Glu | Ile | Leu | Gly |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Phe | Glu | Glu | Asp | Ile | Glu | Asp | Met | Val | Glu | Ala | Asp | Glu | Tyr | Gln | Gly |
| | | 435 | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | |
|---|-----|-----|-----|--|--|--|--|--|--|--|--|--|--|--|--|--|
| 610 | 615 | 620 | | | | | | | | | | | | | | |
| Val Glu Gly Tyr Gly Pro Ala Gly Lys Ile Leu Leu Asp Leu Glu Gln | | | | | | | | | | | | | | | | |
| 625 | 630 | 635 | 640 | | | | | | | | | | | | | |
| Ala Leu Ser Ser Glu Gly Thr Gln Glu Asn Lys Val Lys Pro Leu Leu | | | | | | | | | | | | | | | | |
| | 645 | 650 | 655 | | | | | | | | | | | | | |
| Leu Gln Leu Gln Arg Gln Pro Gln Pro Phe Leu Ala Leu Met Gln Ser | | | | | | | | | | | | | | | | |
| | 660 | 665 | 670 | | | | | | | | | | | | | |
| Leu Asp Thr Pro Glu Thr Asn Arg Thr Leu His Leu Thr Val Leu Arg | | | | | | | | | | | | | | | | |
| | 675 | 680 | 685 | | | | | | | | | | | | | |
| Ile Leu Lys Gln Leu Val Asp Phe Pro Glu Ala Leu Leu Pro Trp | | | | | | | | | | | | | | | | |
| | 690 | 695 | 700 | | | | | | | | | | | | | |
| His Glu Ala Val Asp Ala Cys Met Ala Cys Leu Arg Ser Pro Asn Thr | | | | | | | | | | | | | | | | |
| 705 | 710 | 715 | 720 | | | | | | | | | | | | | |
| Asp Arg Glu Val Leu Gln Glu Leu Ile Phe Phe Leu His Arg Leu Thr | | | | | | | | | | | | | | | | |
| | 725 | 730 | 735 | | | | | | | | | | | | | |
| Ser Val Ser Arg Asp Tyr Ala Val Val Leu Asn Gln Leu Gly Ala Arg | | | | | | | | | | | | | | | | |
| | 740 | 745 | 750 | | | | | | | | | | | | | |
| Asp Ala Ile Ser Lys Ala Leu Glu Lys His Leu Gly Lys Leu Glu Leu | | | | | | | | | | | | | | | | |
| | 755 | 760 | 765 | | | | | | | | | | | | | |
| Ala Gln Glu Leu Arg Asp Met Val Phe Lys Cys Glu Lys His Ala His | | | | | | | | | | | | | | | | |
| | 770 | 775 | 780 | | | | | | | | | | | | | |
| Leu Tyr Arg Lys Leu Ile Thr Asn Ile Leu Gly Gly Cys Ile Gln Met | | | | | | | | | | | | | | | | |
| 785 | 790 | 795 | 800 | | | | | | | | | | | | | |
| Val Leu Gly Gln Ile Glu Asp His Arg Arg Thr His Arg Pro Ile Asn | | | | | | | | | | | | | | | | |
| | 805 | 810 | 815 | | | | | | | | | | | | | |
| Ile Pro Phe Phe Asp Val Phe Leu Arg Tyr Leu Cys Gln Gly Ser Ser | | | | | | | | | | | | | | | | |
| | 820 | 825 | 830 | | | | | | | | | | | | | |
| Val Glu Val Lys Glu Asp Lys Cys Trp Glu Lys Val Glu Val Ser Ser | | | | | | | | | | | | | | | | |
| | 835 | 840 | 845 | | | | | | | | | | | | | |
| Asn Pro His Arg Ala Ser Lys Leu Thr Asp His Asn Pro Lys Thr Tyr | | | | | | | | | | | | | | | | |
| | 850 | 855 | 860 | | | | | | | | | | | | | |
| Trp Glu Ser Asn Gly Ser Ala Gly Ser His Tyr Ile Thr Leu His Met | | | | | | | | | | | | | | | | |
| 865 | 870 | 875 | 880 | | | | | | | | | | | | | |
| Arg Arg Gly Ile Leu Ile Arg Gln Leu Thr Leu Leu Val Ala Ser Glu | | | | | | | | | | | | | | | | |
| | 885 | 890 | 895 | | | | | | | | | | | | | |
| Asp Ser Ser Tyr Met Pro Ala Arg Val Val Val Cys Gly Gly Asp Ser | | | | | | | | | | | | | | | | |
| | 900 | 905 | 910 | | | | | | | | | | | | | |
| Thr Ser Ser Leu His Thr Glu Leu Asn Ser Val Asn Val Met Pro Ser | | | | | | | | | | | | | | | | |
| | 915 | 920 | 925 | | | | | | | | | | | | | |
| Ala Ser Arg Val Ile Leu Leu Glu Asn Leu Thr Arg Phe Trp Pro Ile | | | | | | | | | | | | | | | | |
| | 930 | 935 | 940 | | | | | | | | | | | | | |
| Ile Gln Ile Arg Ile Lys Arg Cys Gln Gln Gly Ile Asp Thr Arg | | | | | | | | | | | | | | | | |
| 945 | 950 | 955 | 960 | | | | | | | | | | | | | |
| Ile Arg Gly Leu Glu Ile Leu Gly Pro Lys Pro Thr Phe Trp Pro Val | | | | | | | | | | | | | | | | |

[illegible]

1665 1670 1675 1680
Arg Gly Val Pro Tyr Ala Ser Cys Thr Ala Thr Gln Ser Phe Ser Thr
 1685 1690 1695
Phe Arg

1665 1670 1675 1680
Arg Gly Val Pro Tyr Ala Ser Cys Thr Ala Thr Gln Ser Phe Ser Thr
 1685 1690 1695
Phe Arg